



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/725,694	11/29/2000	Yong Cao	UA0029 US NA	8823

23906 7590 06/03/2002

E I DU PONT DE NEMOURS AND COMPANY
LEGAL PATENT RECORDS CENTER
BARLEY MILL PLAZA 25/1128
4417 LANCASTER PIKE
WILMINGTON, DE 19805

EXAMINER

YAMNITZKY, MARIE ROSE

ART UNIT	PAPER NUMBER
----------	--------------

1774

DATE MAILED: 06/03/2002

7

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.
09/725,694

Applicant(s)
Yong CAO et al.

Examiner
M. Yamnitzky

Art Unit
1774

MF-7

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE three (3) MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11/29/00, 04/16/01 and 04/20/01.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above, claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
*See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s). 5, 6 6) ☐ Other:

Art Unit: 1774

1. Claims 3, 4 and 6-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 3, 4, 6, 7, 10, 11, 15 and 16 require a water-soluble host polymer, but it is not clear if all the possible host polymers as named in claims 4, 7, 11 and 16 are actually water-soluble. In particular, recitation of "polyurethane dispersion" as a water-soluble host polymer is confusing. The scope of a "water-soluble host polymer" as required by claims 3, 6, 10 and 15 is not clear given that claims 4, 7, 11 and 16 name at least one possibility (polyurethane dispersion) that does not appear to be a water-soluble polymer. (The examiner notes that the specification discloses the polymers named in claims 4, 7, 11 and 16 as "water dispersible and/or water-soluble" host polymers; e.g. see page 7, lines 11-19.)

Claims 4, 7, 11 and 16: The scope of "cellulose derivatives" is not clear. The metes and bounds of "derivatives" of cellulose are not clear.

Claim 7: There is no antecedent basis for "the water-soluble host polymer" as dependent from claim 5. Claim 7 should apparently depend from claim 6 instead of from claim 5.

Claim 8, with claims 9-12 dependent therefrom, is drawn to an "electronic device". The only structural limitation set forth in the body of claims 8-12 is a PANI-PAAMPSA film. It is not clear what structure/components, if any, is/are required in addition to the PANI-PAAMPSA film in order to meet the limitations of an "electronic device".

Art Unit: 1774

Claim 13, with claims 14-20 dependent therefrom is drawn to a light-emitting diode. The only structural limitation set forth in the body of claims 13-18 is a PANI-PAAMPSA film. A PANI-PAAMPSA film alone cannot function as a light-emitting diode. It is not clear what structure/components, in addition to the PANI-PAAMPSA film, must be read into claims 13-18 based on the preamble recitation in claim 13 of "light-emitting diode". The structural relationship between the PANI-PAAMPSA film and any other unrecited but required structure/components of the "light-emitting diode" is not clear.

Claims 15-20: Proper antecedent basis is lacking for the "device" as recited in the preamble of these claims. These claims depend directly or ultimately from claim 13 which is drawn to a "light-emitting diode". The preamble of claims 15-20 should be amended to recite "diode" or "light-emitting diode" instead of "device".

Claim 20: The meaning of the abbreviation "PEDT" is not set forth in the claim.

Claim 20 recites "an oxide of other metals from Groups IIIA (B, Al, Ga, Tl)". Indium is in the same group as B, Al, Ga and Tl. It is not clear if an "oxide of other metals" from Group IIIA is limited to an oxide consisting of an oxide of one or more of B, Al, Ga and Tl. It is not clear if this claim language is excluding an oxide of indium alone and excluding oxides of indium in combination with one or more of B, Al Ga and Tl.

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

Art Unit: 1774

A person shall be entitled to a patent unless -

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in-

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

3. Claims 1-19 are rejected under 35 U.S.C. 102(a) as being anticipated by WO 99/39394.

See the whole document. In particular, see page 9, lines 20-24, p. 11, l. 1-12 and p. 25, l.

10 - p. 26, l. 11.

This reference discloses PANI-PAAMPSA with a bulk resistivity on the order of $10^5 \Omega\text{-cm}$ for use as an anode material in a device having the structure Mg/MEH-PPV/PANI-PAAMPSA/Ag (p. 11). This reference also discloses a PANI-PAAMPSA layer as a buffer layer in a device having the structure Ca/MEH-PPV/PANI-PAAMPSA/Ag (p. 25) and a "high resistive" PANI-PAAMPSA layer sandwiched between a layer of indium tin oxide and a layer of gold.

Claims 3, 4, 6, 7, 10, 11 and 15 and 16 are included in this rejection because PAAMPSA meets the limitations of the counterion as well as the water-soluble host polymer.

Art Unit: 1774

Claims 13-19 are also included in this rejection because, although the prior art devices are not disclosed as light-emitting diodes, the structures of Mg/MEH-PPV/PANI-PAAMPSA/Ag and Ca/MEH-PPV/PANI-PAAMPSA/Ag meet the structural limitations of present claims 13-19. In addition, MEH-PPV is a known electroluminescent polymer and it is the examiner's position that it is reasonable to expect that the prior art devices having the structures of Mg/MEH-PPV/PANI-PAAMPSA/Ag and Ca/MEH-PPV/PANI-PAAMPSA/Ag would be capable of functioning as a light-emitting diode.

4. Claims 1-19 are provisionally rejected under 35 U.S.C. 102(e) as being anticipated by copending Application No. 09/241,656 which has a common assignee and one inventor in common with the instant application, but a different inventive entity.

Based upon the earlier effective U.S. filing date of the copending application, it would constitute prior art under 35 U.S.C. 102(e), if published under 35 U.S.C. 122(b) or patented. This provisional rejection under 35 U.S.C. 102(e) is based upon a presumption of future publication or patenting of the copending application.

The copending application claims priority of provisional application 60/073,411, filed 02/02/98. The examiner has reviewed provisional application 60/073,411. The subject matter of PANI-PAAMPSA with a bulk resistivity on the order of $10^5 \Omega\text{-cm}$ for use as an anode material in a device having the structure Mg/MEH-PPV/PANI-PAAMPSA/Ag, a PANI-PAAMPSA layer used as a buffer layer in a device having the structure Ca/MEH-PPV/PANI-PAAMPSA/Ag, and a

Art Unit: 1774

“high resistive” PANI-PAAMPSA layer sandwiched between a layer of indium tin oxide and a layer of gold is all disclosed in the ‘411 provisional application. Accordingly, the effective U.S. filing date with respect to this subject matter as disclosed in copending application 09/241,656 is 02/02/98 which is prior to the priority date claimed for the present application.

Claims 3, 4, 6, 7, 10, 11, 15 and 16 are included in this rejection because PAAMPSA meets the limitations of the counterion as well as the water-soluble host polymer.

Claims 13-19 are also included in this rejection because, although the prior art devices are not disclosed as light-emitting diodes, the structures of Mg/MEH-PPV/PANI-PAAMPSA/Ag and Ca/MEH-PPV/PANI-PAAMPSA/Ag meet the structural limitations of present claims 13-19. In addition, MEH-PPV is a known electroluminescent polymer and it is the examiner’s position that it is reasonable to expect that the prior art devices having the structures of Mg/MEH-PPV/PANI-PAAMPSA/Ag and Ca/MEH-PPV/PANI-PAAMPSA/Ag would be capable of functioning as a light-emitting diode.

This provisional rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the copending application was derived from the inventor of this application and is thus not the invention “by another,” or by an appropriate showing under 37 CFR 1.131.

This rejection may not be overcome by the filing of a terminal disclaimer. See *In re Bartfeld*, 925 F.2d 1450, 17 USPQ2d 1885 (Fed. Cir. 1991)

Art Unit: 1774

5. Claims 1, 3-8, 10, 11, 13, 15 and 16 are rejected under 35 U.S.C. 102(b) as being anticipated by Liu et al. (5,489,400).

See the whole patent. In particular, see column 2, line 54 - c. 3, l. 3, c. 3, l. 26-48, c. 17, l. 51 - c. 18, l. 4, and claims 5 and 12.

Regarding present claims 3, 4, 6, 7, 10, 11, 15 and 16, PAAMPSA meets the limitations of the counterion as well as the water-soluble host polymer. Poly(acrylic acid) (as required, e.g. by patent claim 12) also meets the limitations of the water-soluble host polymer.

Claims 8, 10, 11, 13, 15 and 16 are also included in this rejection because the only positive limitation of the device/diode of these claims is the PANI-PAAMPSA film; the prior art anticipates the film.

6. Claims 1, 3-8, 10, 11, 13, 15 and 16 are rejected under 35 U.S.C. 102(e) as being anticipated by Angelopoulos et al. (6,193,909 B1).

See the whole patent. In particular, see column 1, lines 22 - c. 3, l. 15, c. 7, l. 40-45 and c. 10, l. 55 - c. 11, l. 61.

Regarding present claims 3, 4, 6, 7, 10, 11, 15 and 16, PAAMPSA meets the limitations of the counterion as well as the water-soluble host polymer.

Claims 8, 10, 11, 13, 15 and 16 are also included in this rejection because the only positive limitation of the device/diode of these claims is the PANI-PAAMPSA film; the prior art anticipates the film.

Art Unit: 1774

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 2, 9, 12, 14, 17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Liu et al. (5,489,400) as applied to claims 1, 3-8, 10, 11, 13, 15 and 16 above and for the further reasons set forth below.

Liu et al. disclose a PANI-PAAMPSA film but do not disclose the electrical resistivity of the film as required by claims 2, 9, 12, 14, 17 or 18. As taught in the present specification, this electrical resistivity is a property of a specific material and does not change with dimension (e.g. see pages 3-4 of the specification). Liu et al. disclose that different ratios of PANI to PAAMPSA may be used (according to patent claim 5, the PANI:PAAMPSA ratio is in the range of 1:1 to 20:1). It would have been within the level of ordinary skill of a worker in the art at the time of the invention to determine suitable and optimum ratios of PANI to PAAMPSA and, concurrently, suitable and optimum electrical resistivity values, based on the intended use of the PANI:PAAMPSA film. One of ordinary skill in the art would have been motivated to provide the PANI and PAAMPSA in a ratio capable of providing an electrical resistivity suitable for the intended use.

Art Unit: 1774

9. Miscellaneous:

In claim 7, one of the two periods should be deleted.

In line 1 of claim 13, a space should be inserted after "PANI-PAAMPSPA".

In line 1 of claim 16, "where in" should read --wherein--.

In line 4 of claim 20, "Groups" should read --Group--.

10. Any inquiry concerning this communication should be directed to Marie R. Yamnitzky at telephone number (703) 308-4413. The examiner works a flexible schedule but can generally be reached at this number from 6:30 a.m. to 4:00 p.m. Monday, Tuesday, Thursday and Friday, and every other Wednesday from 6:30 a.m. to 3:00 p.m.

The current fax numbers for Art Unit 1774 are (703) 872-9311 for official after final faxes and (703) 872-9310 or (703) 305-5408 for all other official faxes. (Unofficial faxes to be sent directly to examiner Yamnitzky can be sent to (703) 872-9041.)

MRY
05/30/02



MARIE YAMNITZKY
PRIMARY EXAMINER

1774